

A Different Kind of Web-Based Knowledge Management

“Little A” Principles Apply to “Big A” Portals

Dr. Joseph P. Avery

Knowledge management is composed of a range of practices deployed by organizations to identify, create, represent, classify, and disseminate knowledge for reuse, awareness, and learning to the benefit of information users. This article demonstrates the practical integration of the principles of KM and systems process by the business enterprise of the Defense Threat Reduction Agency. In this example, a technology-centric approach to knowledge sharing and utilization was adopted to design a simple Web-based system that provided highly needed “how-to” and reference information to DTRA acquisition professionals. The Acquisition ToolBook’s successful development and deployment effectively integrated KM with process management, and it permitted a systemic review of the acquisition process for ineffective procedures and policies.

Addressing an Information-Deficit Environment

The idea for the DTRA Acquisition Web ToolBook originated as a result of an information environment



ToolBook represents a merger of KM, process management, and operational simplicity—the foundational triad of successful user information systems.

characterized by acquisition functional and process information that was scattered throughout a myriad of DTRA Web sites as well as shared and private drives, or it was simply not available in any capacity. This unfavorable environment was exacerbated because DTRA was the merged product of five different defense agencies and programs. It was a hotbed of hide-and-seek information hoarding that was not conducive to efficient acquisition operations. Information search activities for acquisition data were becoming so difficult and time-consuming that they periodically exceeded the anticipated time for actual task completion. DTRA had to develop an information management system that would centralize and consolidate all acquisition reference information, processes, and procedures into a single page on the agency’s main Web portal. This tool would be a single and easily accessible, centralized, and functionally based repository of approved information, documentation, procedures, references, and processes available to all acquisition professionals.

Acquisition ToolBook is not a large, Department of Defense-wide acquisition system such as the Acquisition

Avery is the DTRA program manager for the Acquisition ToolBook. He has 26 years of military and civilian service, including 23 years in acquisition.

Deskbook or the Acquisition Knowledge Sharing System (AKSS). Although those “Big A” portals serve a purpose of acting as comprehensive repositories of acquisition information and collaboration, in the trenches, project managers are looking for smaller, simpler, and faster portals of information to obtain the how-to and reference information needed to perform the acquisition task at hand without extensive data mining and infinite search activities. The ToolBook information environment was designed to make information easily found and accessed through a single location on the agency-level enterprise information system. More importantly, this micro-level site provides agency-specific acquisition information and processes. The ToolBook would serve as the agency’s graphic interface, portraying the entire agency acquisition process represented through 24 activity boxes of related acquisition information and tasks.

The Blueprint to an Effective Information Environment

A DTRA-led team created and posted on the internal agency Web site a detailed process map to guide the agency’s acquisition professions. Smaller, simpler, and faster were the hallmarks of the successful acquisition portal. On May 1, 2007, exactly one year from the project start, the Acquisition ToolBook was successfully installed onto the DTRA Web server.

ToolBook is based upon an integration of Microsoft® SharePoint™, Adobe® Flash®, and Microsoft® net application software tied to a relational database management system (a database in which data and the relationships among data are stored in the form of tables). This combination facilitates simplicity, speed of access and use, and provides system flexibility and a broad array of technical features beneficial to system users. By preventing infinite search activities, ToolBook improves the speed and effectiveness of the user’s acquisition task completion. The critical acquisition information provided by ToolBook was tailored to meet the information needs of program and project managers. However, it also benefits contracting officer representatives, contract specialists, and program analysts by assisting them in the performance of their specific acquisition and procurement functions.

ToolBook represents a merger of KM, process management, and operational simplicity—the foundational triad of successful user information systems. Personnel cannot access the information needed if it is too difficult to locate. Whether designing a local information system or a DoD-wide information portal, the fundamental principles of successful Web-based KM systems are the same.

Figure 1: ToolBook Home Page

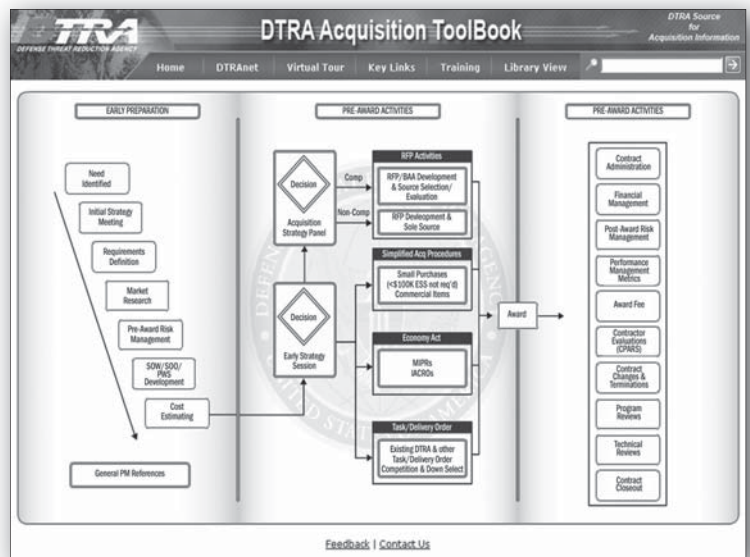


Figure 2: Second-Level Menu



Eight Key Principles of Successful KM-Based Systems

- Minimize bells and whistles and maximize quick access and simplicity of operation.
- As the level of site complexity and menus rise, the level of user utility diminishes.
- Needed information should be no more than three-to-five mouse clicks to user acquisition, with three being the technical objective.
- Keep the site menu structure shallow.
- A graphics-based system is normally more user friendly than a text-based system, and a duplex system (a system that uses both functional text and graphic-based methods to retrieve textual information) can be more effective than a graphics-based system alone.

- Focus system design and technical architecture on speed, easy access, and simplicity.
- Accurate and intuitive titling of data descriptors, menus, or entry points is extremely important.
- Organize information by process, activities, functions, and organization as appropriate for your needs.

ToolBook Structure

In this particular architectural design, the Acquisition ToolBook was structured to follow the DTRA acquisition process from program start to program closeout activities (Figure 1). The site's homepage is divided into three broad phases: Early Preparation, Pre-Award Activities, and Program Execution. Early Preparation contains the initial activities required for up-front acquisition project planning and organization. The Pre-Award Activities section includes all follow-on acquisition and contractual efforts to get the acquisition awarded and on contract. The Program Execution section contains information on the post-award phase, which includes program management and oversight activities required to administer and execute a successful program. The ToolBook Homepage graphic portrayal of the DTRA acquisition process is organized into 24 activity boxes that form a logical progression of the work activities required to get an acquisition effort on contract and executed. There is also one box entitled General PM References that contains broad-based or overarching documents that do not fit into any one activity box category. Although ToolBook is primarily a graphics-based acquisition portal, it is actually composed of a duplex architecture that can use a graphically-based methodology to search and retrieve data or a text-based library view that can quickly locate and more effectively display related task data. The choice of method used is the user's discretion.

There is only one main sub-level menu for each activity box in the main ToolBook that houses the majority of documents, making users no more than three mouse clicks away from most information they need (Figure 2). There is also one third-level menu for unique enterprise-level documents. Within each activity box in the second-level menu are separate icons for the following six information areas: Tools and Examples, Policy Documents, Issuances (which contains guides, manuals, handbooks, etc.), Training, Ask an Expert, and Enterprise-Unique Documents.

Acquisition ToolBook uses a progressive information approach to information classification and management. For example, if a project manager is unfamiliar with award fee contracts and requires information on how to write an award fee plan, ToolBook offers a progressive level of knowledge to help the user get the job done. First, the user would select the Award Fee activity box. When the second-level menu appears, the five main icons provide a graduated pyramid level of information. The Training icon would provide the user with basic information on

the concepts, responsibilities, and requirements of award fee contracts and issues. If more detailed information is required, the Issuances icon, which includes an array of in-depth guides, manuals, handbooks, standard operating procedures, and standard operating instructions, will provide a multitude of detailed information on the subject. Once training and/or detailed information is accessed on the subject, the user can select the Tools and Examples icon, which provides the actual examples, checklists, and templates needed to help complete the task at hand. The Policy icon provides any relevant policy memorandums on the subject. As an avenue of last resort, the ToolBook also features a sophisticated Ask an Expert capability that permits users to send acquisition-related questions to agency experts on the subject. For enterprise-unique processes, procedures, and instructions, users can also access their own enterprise's menu of key documents managed by each enterprise.

The Acquisition ToolBook site is designed for a low user investment in time and training, and also for a low administrative burden. Formal training classes are not required—a narrated virtual tour movie provides users with an overview of the entire ToolBook site. A directory of Internet addresses provides direct links to nearly all key agency and DoD acquisition references as well as to Web pages that explain how to perform subsidiary tasks (such as the completion of travel forms required for the Defense Travel System). There are also links for Contractor Performance Assessment Reporting System reporting, DTS, AKSS, DoD 5000 series acquisition directives, Federal Acquisition Regulation, DoD FAR Supplement, federal grants, the Office of the Secretary of Defense Small Business Innovation Research site, Wide Area Work Flow, and a myriad of other valuable Web sites. ToolBook also supports a document search function and a library view capability that can simultaneously display documents by each category for a particular activity box for all documents.

A Successful Knowledge Management Portal

The “little a” principles of acquisition KM appear to apply to “Big A” acquisition portals. Both have a specific set of users who demand similar attributes of system operability: operational simplicity, swift data location and extraction, and a logical taxonomy and data organization scheme to find and manipulate acquisition data. KM, process management, and operational simplicity—the foundational triad of successful user information systems—were successfully merged with this system. The DTRA Acquisition ToolBook has effectively managed to integrate the positive elements of portal and process development to the benefit of its acquisition workforce.

The author welcomes comments and questions and can be contacted at joseph.avery@dtra.mil.